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IWU Astronomer Embraces Scientific Progress of Proposed New Planetary Definitions

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BLOOMINGTON, Ill. – Never underestimate the power of a childhood mnemonic device.

Linda French

Whether you learned the planets of the solar system by reciting the memory aid, "My Very Eager Mother Just Showed Us Nine Planets" or "My Very Educated Mother Just Served Us Nine Pizzas," astronomers are swayed more by the cultural influence of that final "pizzas" than you might think, says an Illinois Wesleyan astronomer who helped select panelists who hammered out the new International Astronomical Union (IAU) recommendations that would preserve Pluto's status as a planet.

Linda French, associate professor of physics at Illinois Wesleyan, is a member of the Executive Committee of the Division for Planetary Sciences of the American Astronomical Society, and in this position had a hand in assembling the group whose Aug. 16 recommendations would redefine what makes an object a planet. Rather than deal with the trauma of losing the ninth planet, French said, scientists and schoolchildren face the prospect of learning up to 50 planets in our solar system, if the recommendations are adopted later this month at the IAU's ongoing General Assembly in Prague, in the Czech Republic.

French, whose research includes asteroids—once dubbed minor planets but now to be termed "small solar system objects" to avoid confusion—doesn't object to the potential upheaval in popular understanding of the galaxy near to us.

"One of the things I hammer on in my astronomy class at Illinois Wesleyan is that when things are going normally, that's not exciting science, that's a normal day at work. It's when things go as you didn't expect them to and you realize you have to change your way of thinking that things are really exciting.

"When the *New York Times* has a headline saying 'scientists are baffled,' maybe the world is trying to teach us something. That's when we can make a breakthrough. What we're learning from this is there are more kinds of objects out there than we were prepared to deal with a few years ago. Now, we're making our definitions based on the objects themselves and not how we discovered them."

Under the proposed definitions, a celestial body is considered a planet if its mass is sufficient for its self-gravity to pull it into a roughly spherical shape, and if it orbits the sun but is neither a star itself nor the satellite of another planet. These definitions would immediately make planets of Ceres (beyond Mars, formerly considered an asteroid), Charon (formerly considered a moon of Pluto) and the object 2003 UB313, nicknamed Xena upon its discovery in 2003 but not yet formally named. Charon and Pluto form a double planet system, spinning together around a point in space between them—and because this barycentre isn't under Pluto's surface, Charon wouldn't be considered a satellite of Pluto the way the moon is a satellite of Earth. A dozen more objects also are considered strong candidates for classification as planets, and French has heard projections of up to 50 planets total, once objects in the Kuiper Belt near Pluto are sorted out.

Determining the shape of celestial bodies is an area of research French and her students conduct on asteroids, and French was among principal researchers who recently discovered an asteroid that was actually a comet before it became active. She primarily studies asteroids and comets sharing Jupiter's orbit—none of which she expects to be candidates for planetary status.

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